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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/559,493

12/05/2005

Marco Bosch

12810-00175-US

8701

23416

7590

06/19/2009

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EXAMINER

KEMMERLE III, RUSSELL J

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

06/19/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/559,493	Applicant(s) BOSCH ET AL.	
	Examiner RUSSELL J. KEMMERLE III	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-17,19,20 and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-17,19,20 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11 May 2009 has been entered.

Claim Rejections - 35 USC § 103

Claims 1-6, 8-17, 19, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frauenkron (US Patent 6,562,971) in view of Ashina (European Patent Publication 0,130,407) and Ogawa (US Patent 6,350,874).

Frauenkron discloses a method of forming a body which involves mixing a zeolite powder with silica (which acts as a binder), extruding the mixture, and calcining the formed body at 500°C for 5 hours (Col 14 line 65 – Col 15 line 6). While the example used in that passage is a zeolite powder of silica and titania, Frauenkron also discloses that the powder could be a mixture of silica and alumina (see Claim 1, Col 15 lines 55-56).

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Frauenkron does not disclose treating the body with a gas consisting solely of water vapor at 100-600°C at a pressure of 0.1-10 bar for at least 20 hours after the calcination process.

Ashina discloses the use of a zeolite as a catalyst for vapor phase reactions which includes first treating the zeolite with steam to increase the results of the reaction (abstract). Specifically, Ashina discloses that the treatment can take place in an environment of 100% steam (water vapor) at a temperature of 250-700°C for 1-400 hours at a pressure of 1-70 atm (1.01-70.93 bar) (page 7 lines 4-34).

Frauenkron also does not disclose that the aluminosilicate used have an $\text{SiO}_2/\text{Al}_2\text{O}_3$ molar ratio of 10:1 to 1200:1, but instead discloses a molar ratio of greater than 1400:1 (Col 4 lines 6-9).

Ogawa discloses an aluminosilicate catalyst to be used in forming preparation of triethylenediamine according to a process similar to that of Frauenkron. Ogawa further discloses that the crystalline aluminosilicate have a molar ratio of silica to alumina of at least 12:1, and preferably from 40:1 to 5000:1.

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have modified the method taught by Frauenkron by using the aluminosilicate catalyst of Ogawa having a molar ratio of greater than 12:1 and to have treated this body with steam as taught by Ashina. This would have been obvious because Ogawa discloses that a catalyst with such a molar ratio is economical, has a long life and the yield can be kept high (Col 4 lines 15-18). This would have been

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further obvious because Ashina discloses that a water vapor treatment creates a zeolite which acts as a better catalyst in vapor phase reactions.

Referring to claims 3 and 4, Ashina does not disclose the WHSV used to treat the shaped body, however it would have been obvious to one skilled in the art that this would affect the result of the treatment since it determines how much water vapor the body comes in to contact with (the point of the treatment), and it would thus be within the ability of one skilled in the art to optimize this variable.

“[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to be prima facie obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%.); See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy).

Referring to claim 6, while Ashina does not specifically disclose that the shaped body is in a fixed position during the water vapor treatment, one skilled in the art would understand that unless otherwise stated a body is typically kept still during treatment since it is easier to control.

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Referring to claims 9 and 10, Frauenkron discloses that the zeolite material is preferably of the pentasil type, and preferably at least partially in the H^+ and/or NH_4^+ form (Col 9 Line 66 – Col 10 line 11).

Referring to claims 11 and 13, Frauenkron discloses a method of making triethylenediamine (TEDA) by a reaction involving ethylenediamine (EDA) and piperazine (PIP) in the presence of the aluminosilicate zeolite catalyst discussed above (Claim 1)

Referring to claim 12, Frauenkron discloses that this process is carried out continuously and in the gas phase (Claims 2 and 3)

Referring to claims 14, 15, 16 and 17, these limitations are all disclosed by Frauenkron (Claims 9, 10, 13 and 14, respectively)

Referring to claims 19 and 20, the chemical synthesis process discussed above for making TEDA renders these claims obvious.

Referring to claim 22, since Frauenkron, Ashina and Ogawa make obvious the method of claim 1 as discussed above, they would also render obvious the shaped body prepared by that method.

Response to Arguments

Applicant's arguments with respect to the above claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RUSSELL J. KEMMERLE III whose telephone number

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is (571)272-6509. The examiner can normally be reached on Monday through Thursday, 7:00-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art
Unit 1791

/R. J. K./
Examiner, Art Unit 1791